INTRODUCTION

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Corn (*Zea maize* L.) is one of the most important grain crops all over the world. It is used mainly for animal feeding, poultry wealth and human consumption in some growing countries. Moreover, there are a new industrial uses of corn such as the industrial corn products for clean environment (biodegradable packing peanuts, biodegradable tray and eating utensils, bunnies diaper, clam shell, daily home uses agricultural printing inks, ethanol and hydrosorb materials), production of corn oil and corn refining for producing corn germ, starch, starch syrup conversion, alcohol by fermentation, dextrose and high fructose corn sweetness (U.S. Feed Grains Council, 1994).

In Egypt, the cultivated area of maize grain production reached about 1.7 million feddan in season 2000 (Field Crop Institute, ARC, Giza, Egypt), which produced approximately 5.6 million tons of corn grain. Corn importation play an important role in our annually grain consumption where, Egypt imported about 3.8 million tons of yellow corns from different sources such as USA, Argentina and Europe for different purpose during season 2000 (CLFF, ARC, Giza, Egypt).

A wide variety of microorganisms are associated with grain kernels. The kinds and abundance of these microorganisms depend on factors such as the climate under which the grains are produced, storage conditions, and the portion of the grains of which the products are composed. Hence, some molds growing in some materials under some conditions can produce toxic compounds. Fungal toxins produce a wide range of injurious effects in animal, in addition to serving as food-borne hazards to humans. The fungi that invade and damage grains and their products are divided into two general groups *i.e.*, field or storage fungi, according to their

ecological requirement where field fungi invade grains before harvest and the most common are species of *Alternaria* and *Fusarium* while, storage fungi are mostly species of *Aspergillus* and *Penicillium*. These fungi are making un-desirable effects on grain quality like discoloration, reduced germination, heating, caking, mustiness, sour odors, chemical changes, loss of weight, reduction in grade and mycotoxin contamination (FGIS, USA 1994). Meanwhile, the factors affecting mold growth are moisture content, temperature, time in storage and grain condition.

Aflatoxins widely contaminated the stored and imported corn grains under Egyptian condition and cause a great problems to human and animals **(Eisa *et al.*, 1996b)** These aflatoxins are mycotoxins produced by mold fungi, belonging essentially to genus *Aspergillus* (*A. parasiticus* and *A. flavus*, etc.).

All mentioned storage and field problems of corn grains which resulting from mold fungi are controlling by different ways essentially to prevent mold growth like resistant varieties, cultural practices, sanitation, monitor grain condition, moisture level adjustment and using mold inhibitors or fungicides.

As a result for, this work was done for isolation and identification of field and storage fungi on corn grains (cultivated and imported), studying infestation effects of *Aspergillus flavus* and *A. ochracus* on infection percentage and mycotoxins production (aflatoxins and ochratoxins) in corn grains under different storage periods, studying the effects of using some preservatives on corn grains infection and mycotoxins production under different storage periods and to concentrate the light on possibility of using the physical degradation of aflatoxins and other mycotoxins as one of a new promising ways for detoxifying and prophylaxis of stored corn grains using electric and magnetic waves.